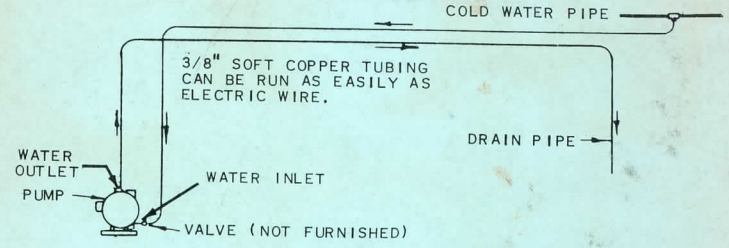
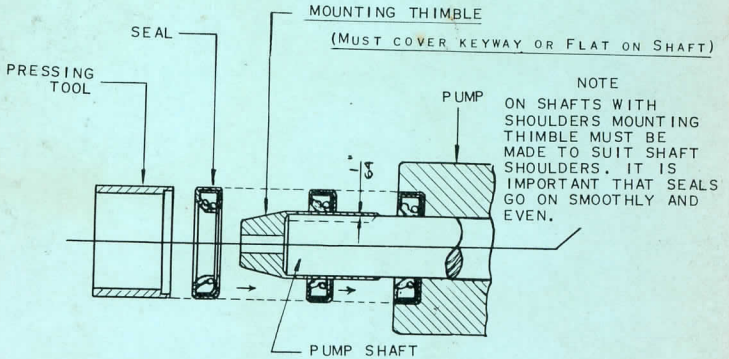
INSTRUCTIONS FOR WATER COOLED PUMPS



A stream about 1/16" diameter is usually sufficient.

The pump should be allowed to heat up to about 145-155 degrees F. (This temp. is too hot to hold your hand on.) Do not keep cylinder cold.

OIL SEAL INSTRUCTIONS



APPLY OIL OR GREASE TO THE FACE OF THE SEALING ELEMENT BEFORE INSTALLING. THIS PREVENTS EXCESSIVE HEATING DURING THE FIRST FEW MINUTES OF OPERATION. LUBRICANT SHOULD BE APPLIED TO THE MOUNTING TOOLS TO FACILITATE EASY PASSAGE OF THE SEAL OVER THEM. IN PUSHING A SEAL ON OR OFF THE MOUNTING TOOL, USE A TWISTING MOTION.

Operating Instructions and Helpful Rules for Operating

LEIMAN BROS.

ROTARY POSITIVE

AIR PUMPS

CURVED WING TYPE
A through G

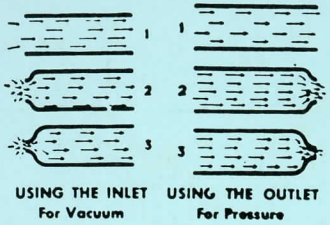
STRAIGHT WING TYPE
Size 26-1½ through 106
Including K2-K-K3-K4 & K5

CAUTION

ON STRAIGHT WING PUMPS USE S.A.E. 10-30 MULTIPLE VISCOSITY OIL

ON CURVED WING PUMPS USE S.A.E. 50 VISCOSITY OIL

HOW TO SECURE VACUUM OR PRESSURE



No. 1 shows air passing through a pipe creating neither vacuum or pressure.

No. 2 shows air drawn through a reduced inlet, creating vacuum and forced through a reduced outlet creating pressure.

No. 3 shows inlet and outlet further reduced, increasing vacuum and pressure.

The smaller the opening, the higher the pressure or vacuum will be.

IMPORTANT

With new pumps, see that tin plug is removed from inlet and outlet.

Check electric current in building with current of motor for correct running speed. Wrong current may mean wrong speed, causing motors to burn out, etc.

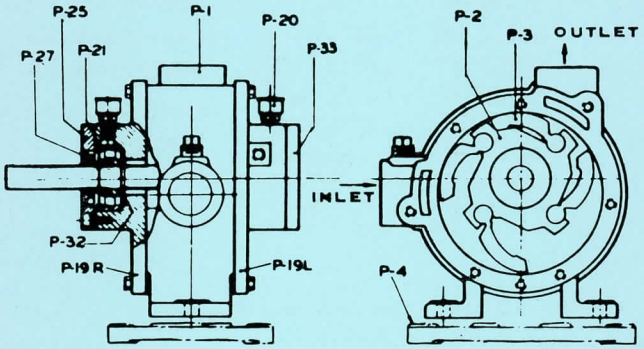
LUBRICATION

For Oiling Instructions on Pumps equipped with automatic Oil-feed system, see pages 1 and 6.

For Oiling Instructions on Pumps equipped with E-113-4 automatic Oil cup, see pages 1 and 7.

Too much oil causes a Vapor discharge.

CURVED WING PUMPS WITH ROLLER BEARINGS



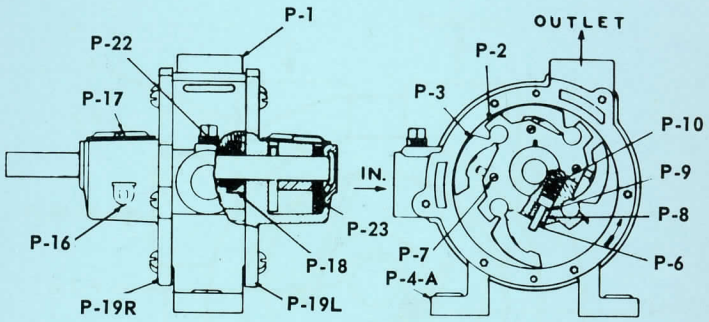
LIST OF PARTS

P-1	Cylinder	P-20	Oil Cup (2)
P-2	Piston (With Shaft)	P-21	Roller Bearing (2)
P-3	Wing (4)	P-25	Seal Housing
P-4	Base	P-27	Seal
P-19L	Cylinder Head	P-32	Retaining Ring (2)
P-19R	Cylinder Head	P-33	End Cap

IMPORTANT

When ordering parts always mention pump size and serial number.

CURVED WING PUMPS
WITH WOOL PACKED BEARINGS



LIST OF PARTS

P-1	Cylinder	*P-10	Push Pin Spring
P-2	Piston (With Shaft)	P-16	Oil Fill Elbow
P-3	Wing	P-17	Bearing Cover
P-4-A	Leg	P-18	Oil Retainer Collar
*P-6	Push Pin	P-19L	Cylinder Head
*P-7	Set Pin	P-19R	Cylinder Head
*P-8	Push Pin Bushing	P-22	Oil Retainer Spring
*P-9	Push Pin Washer	P-23	Bearing Felt Wick

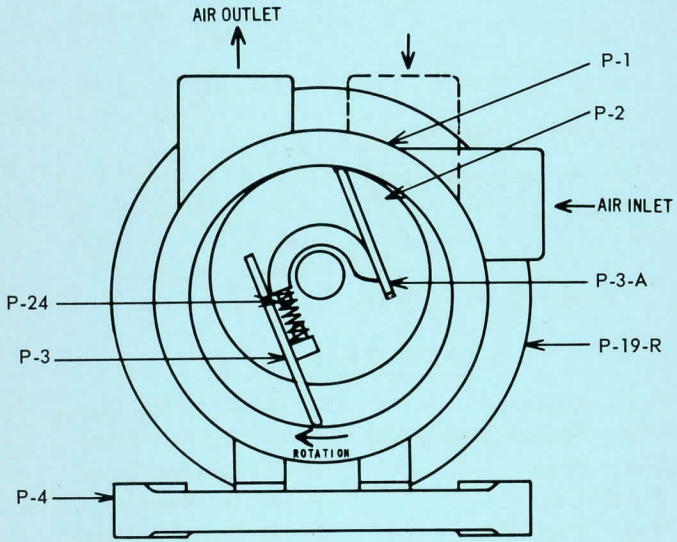
Detachable legs on "D", "E", "F-8", & "G" pumps only

*"D", "F-8" & "G" pumps only

IMPORTANT

When ordering parts always mention pump size and serial number.

STRAIGHT WING PUMPS
WITH ROLLER BEARINGS



PARTS LIST

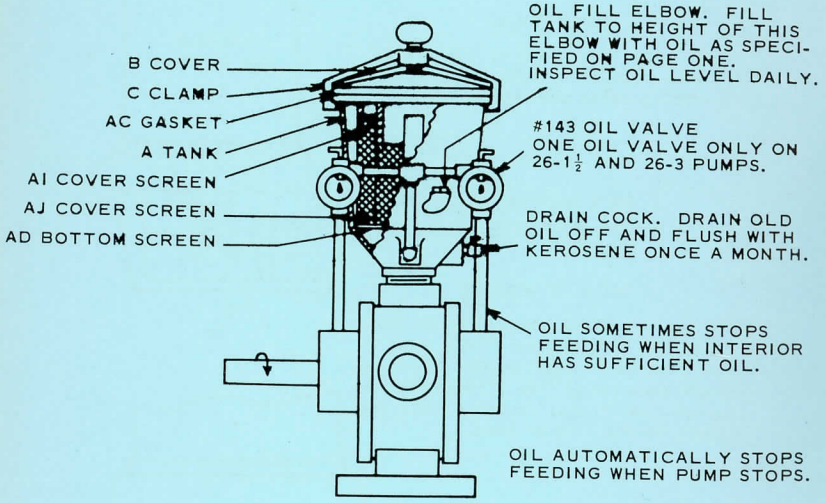
P-1	Cylinder	P-14-L	Cylinder Head
P-2	Piston & Shaft	P-19-R	Cylinder Head (Shaft End)
P-3	Wing With Spring Support*	P-21	Roller Bearing
P-3-A	Wing With Hook*	P-24	Spring
P-4	Baseplate	P-27	Oil Seal

When ordering parts
always mention pump size and serial number.

*Hook and Spring Support not furnished on 26-1-1/2 and 26-3.

DIRECTIONS FOR AUTOMATIC OIL FEED SYSTEM

FOR VACUUM 5" TO 27" HG.



With pump running at required vacuum adjust oil valve to 2-3 drops per minute on all pumps excepting E, 100 and 106 which should be 6 drops per minute. After adjustment, pump may now be operated at desired vacuum.

CAUTION: Oil valve will not feed properly if vacuum is less than 5" Hg.

E-113-4 AUTOMATIC OILER

Oiler will feed only when pump runs.

Rate of feed depends upon spout adjustment which controls height of oil in well "W".

IMPORTANT

Make sure that gasket is seated properly and jar is tight at all times especially after adding oil.

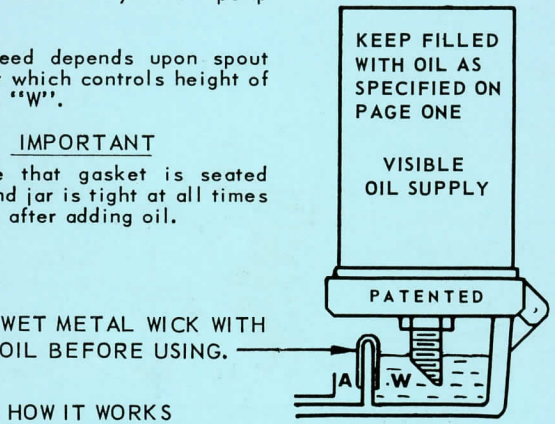
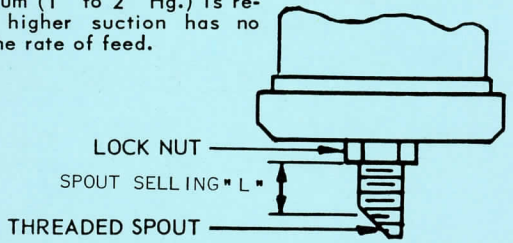


FIG. 12

HOW IT WORKS

Oil feeds slowly through wick from well "W" into hole "A" and is then sucked into pump. Only a slight vacuum (1" to 2" Hg.) is required. A higher suction has no effect on the rate of feed.



PUMPS WITH OIL CUPS ON ROLLER BEARINGS

Fill both bearing oil cups with oil twice every week. (See Page 1.) Pumps without oil cups on bearings are internally lubricated.

PUMPS WITH WOOL PACKED BEARINGS

Lubricate both bearings, fill with oil, (See Page 1) once every month.

INSTRUCTIONS FOR E-113-4 AUTOMATIC OILER OIL FEED ADJUSTMENT

Curved Wing Pump Sizes	Spout Setting "L"	When Using Pumps for Pressure, Reduce Pump Inlet to Diameter Shown Below	
A	1/4"	9/32"	
B	7/32"	3/8"	
B-3	7/32"	3/8"	
C & C-3	3/16"	9/16"	
C-4½	3/16"	5/8"	
C-6	3/16"	3/4"	
dbl. B-2 x 2	7/32"	3/8"	
dbl. C-3 x 3	3/16"	9/16"	
dbl. C-3 x 4½	3/16"	9/16" on C-3	5/8" on C-4½
dbl. C-3 x 6	3/16"	9/16" on C-3	3/4" on C-6
dbl. C-4½ x 6	3/16"	5/8" on C-4½	3/4" on C-6
D	3/16"	3/4"	
E	3/16"	3/4"	

Loose lock nut & shorten spout projection to increase oil feed. Lengthen spout, decrease oil feed.

Straight Wing Pump Sizes	Spout Setting "L"	When Using Pumps for Pressure, Reduce Inlet to Dia. Shown Below
26-1-1/2	3/8"	1/4"
26-3	1/4"	1/4"
K	3/8"	1/4"
K-2	7/16"	1/4"
K-3	1/4"	1/4"
K-4	1/4"	1/4"
28-3 & K-5	5/16"	1/2"
29-3	1/4"	9/16"
29-6	3/16"	3/4"
100	5/32"	3/4"
195-2	7/16"	1/2"
30-6 & 30-3	3/16"	9/16"

RADIATOR-COOLED AND FAN-COOLED VACUUM PUMP UNIT OPERATING INSTRUCTIONS

These pumps are carefully checked for vacuum of 29.9" Hg. or 1/10" of the barometer before leaving the factory.

If the vacuum is not obtained, check your system for leaks, or water and other substance that may be volatile under the amount of vacuum being used.

This can be checked by disconnecting your system and measuring the vacuum at the pump-inlet with the inlet closed. If 29.9" Hg. vacuum is obtained at the pump inlet the trouble is in your system.

If full rated vacuum is not obtained at the pump check the following:

1. Be sure the oil level, with the pump running, is up to level indicated at oil gage on base. Sometimes water collects in the oil base and will cause a loss of vacuum. Drain water off and check oil level.
2. Be sure oil is flowing thru the oil-flow sight glass on the pump.
3. If air bubbles appear in oil-flow sight glass, check for leaks in oil system piping, or crack in glass.

Such leaks can usually be found by squirting heavy oil on possible points of leakage. The vacuum will rise momentarily as the oil seals the leak.

When using dial type vacuum gauges be sure your gauge is operating properly.

OPERATING INSTRUCTIONS FOR RADIATOR-COOLED VACUUM PUMPS

SIZES 29-3 – 29-6 – 100 – 106

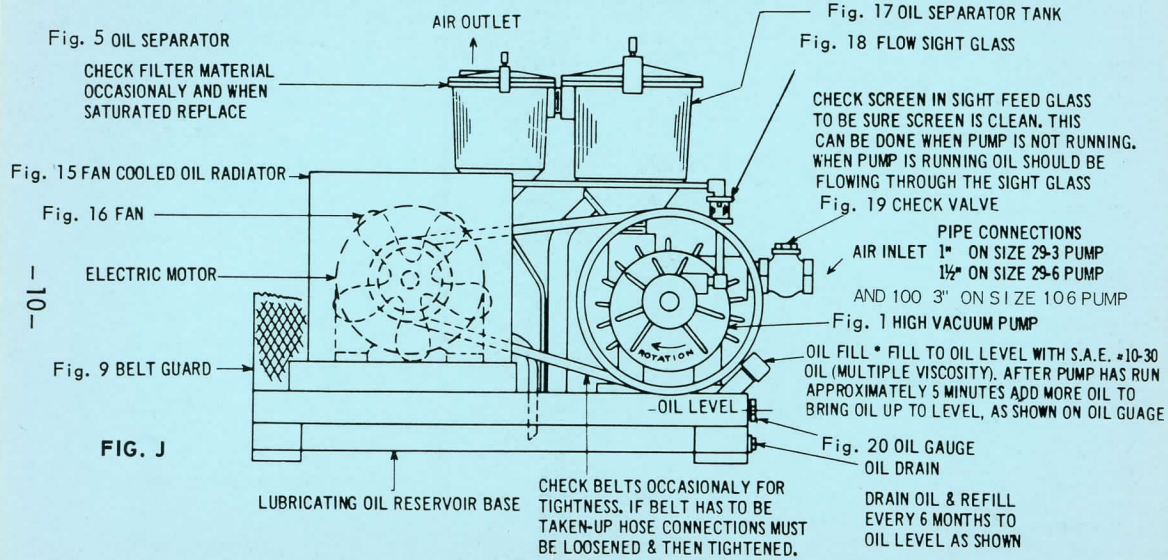


FIG. J

WHEN ORDERING PARTS ALWAYS MENTION PUMP SIZE & SERIAL NUMBER

SEE PAGE 5 FOR PUMP PARTS

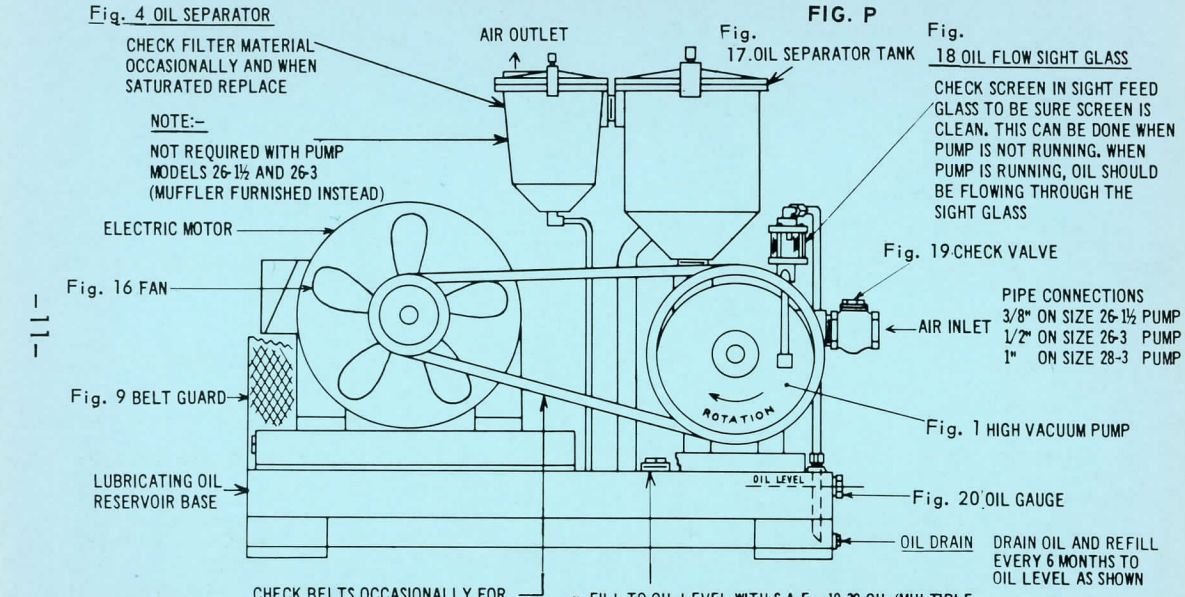
*OIL CAPACITIES

29-3 & 29-6	3 gal.
100-	5¼ gal.
106-	7½ gal.

OPERATING INSTRUCTIONS FOR FAN-COOLED VACUUM PUMPS

SIZES 26 & 28

FIG. P

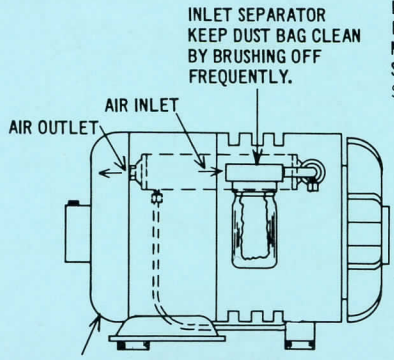


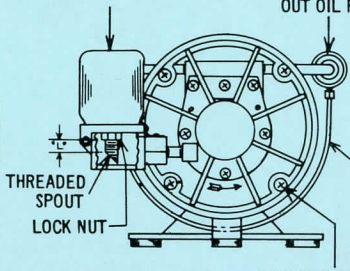
* OIL CAPACITIES:
SIZE 26 PUMPS 3 QTS.
SIZE 28 PUMPS 4.5 QTS.

WHEN ORDERING PARTS ALWAYS MENTION PUMP SIZE & SERIAL NO.

SEE PAGE 5 FOR PUMP PARTS

OPERATING INSTRUCTIONS FOR MODEL "K-2" & "K-3" UNIT (AIR PUMP) FOR VACUUM SERVICE





OUTLET VAPOR FILTER

TO CLEAN: DISCONNECT OIL RETURN TUBE, REMOVE FILTER. WITH FILTER IN VERTICAL POSITION, POUR NAPHTHA INTO INLET OR OUTLET. LET DRY BEFORE REPLACING. ALSO BLOW OUT OIL RETURN TUBE.

SINGLE PHASE MOTOR EQUIPPED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION. FOR BEST RESULTS TO AVOID OVERLOAD OF MOTOR ALWAYS START PUMP WITH VACUUM RELEASED. (INLET OPEN)

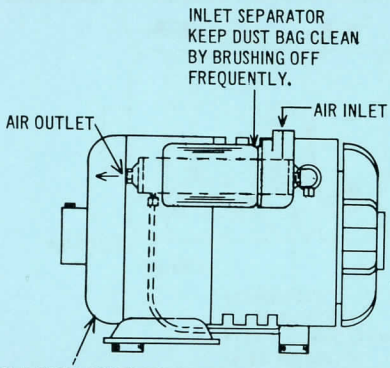
TO REMOVE AIR PUMP:

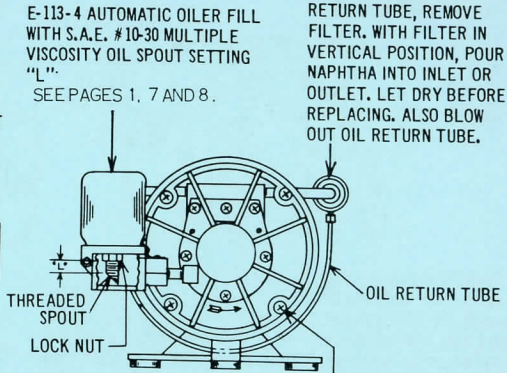
1. LOOSEN SET SCREW ON FAN HUB NEXT TO PUMP.
2. REMOVE 4 SCREWS AS SHOWN AND SLIDE PUMP OUT.

CAUTION:—WHEN USING PUMP FOR PRESSURE SERVICE RELOCATE E-113-4 OILER AS SHOWN ON PAGE 14.

ALWAYS MENTION SERIAL NO. WHEN ORDERING PARTS
SEE PAGE 15 & 16 FOR PUMP PARTS

OPERATING INSTRUCTIONS FOR MODEL "K-4" & "K-5" UNIT (AIR PUMP) FOR VACUUM SERVICE





OUTLET VAPOR FILTER

TO CLEAN: DISCONNECT OIL RETURN TUBE, REMOVE FILTER. WITH FILTER IN VERTICAL POSITION, POUR NAPHTHA INTO INLET OR OUTLET. LET DRY BEFORE REPLACING. ALSO BLOW OUT OIL RETURN TUBE.

SINGLE PHASE MOTOR EQUIPPED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION. FOR BEST RESULTS TO AVOID OVERLOAD OF MOTOR ALWAYS START PUMP WITH VACUUM RELEASED. (INLET OPEN)

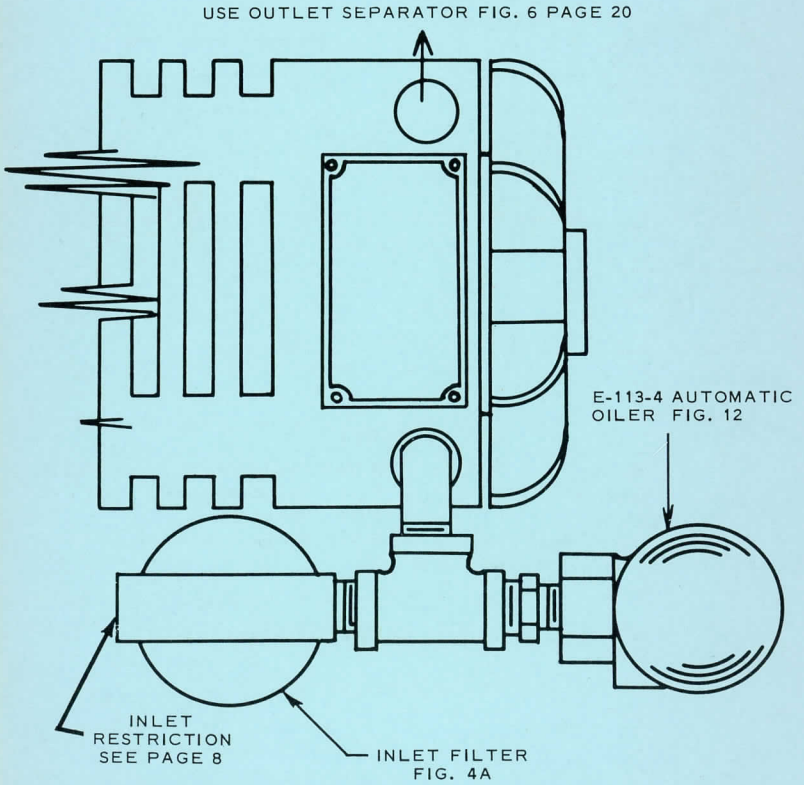
TO REMOVE AIR PUMP:

1. LOOSEN SET SCREW ON FAN HUB NEXT TO PUMP.
2. REMOVE 4 SCREWS AS SHOWN AND SLIDE PUMP OUT.

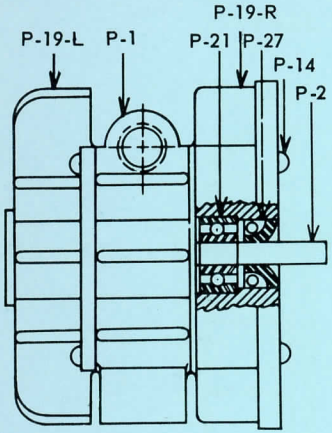
CAUTION:—WHEN USING PUMP FOR PRESSURE SERVICE RELOCATE E-113-4 OILER AS SHOWN ON PAGE 14.

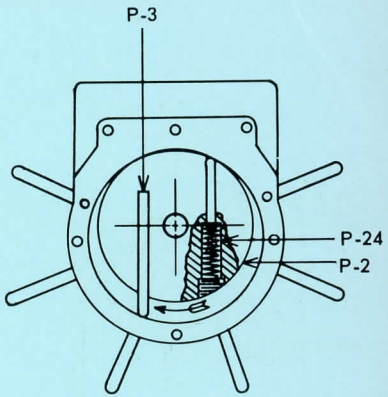
ALWAYS MENTION SERIAL NO. WHEN ORDERING PARTS
SEE PAGE 16 FOR PUMP PARTS

OPERATING INSTRUCTIONS
FOR MODEL "K", "K-2", "K-3" "K-4" & "K-5"
FOR PRESSURE SERVICE



PARTS LIST FOR MODEL "K" & "K-3" PUMP



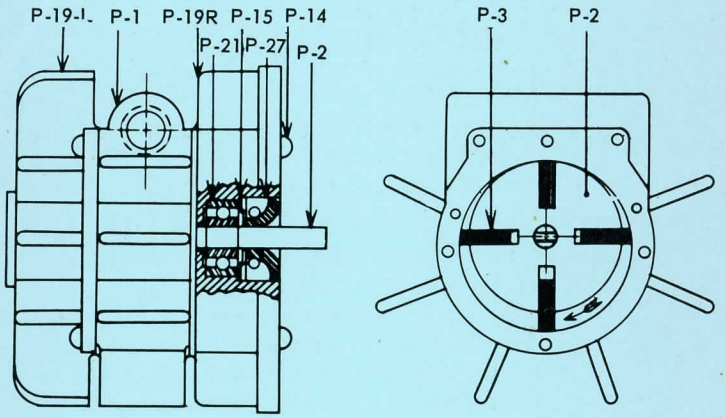


LIST OF PARTS

P-1	Cylinder	P-19-R	Cylinder Head (Shaft End)
P-2	Piston (With Shaft)	P-21	Ball Bearings (2)
P-3	Wing (2)	P-24	Spring (2)
P-14	Cylinder Head Screws	P-27	Oil Seal
P-19-L	Cylinder Head (Blind End)		

ALWAYS MENTION SERIAL NO. WHEN ORDERING PARTS

PARTS LIST FOR MODEL "K-2", "K-4" & "K-5" PUMP



LIST OF PARTS

P-1	Cylinder	P-19-L	Cylinder Head, Blind End
P-2	Piston (With Shaft)	P-19-R	Cylinder Head, Shaft End
P-3	Wing (4)	P-21	Ball Bearings (2)
P-14	Cylinder Head Screws	P-27	Oil Seal
P-15	Bearing Loading Spring*		

ALWAYS MENTION SERIAL NO. WHEN ORDERING PARTS

*K-4 ONLY

LEIMAN BROS. NEW STATIC OIL VAPOR FILTER

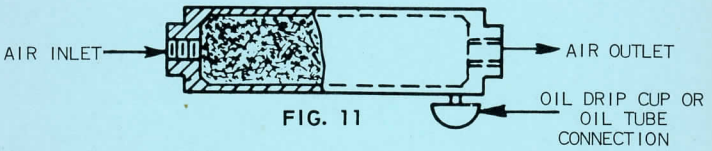


FIG. 11

This new type filter operating on an entirely new and different principle has the ability to remove oil vapor from the air which passes through it.

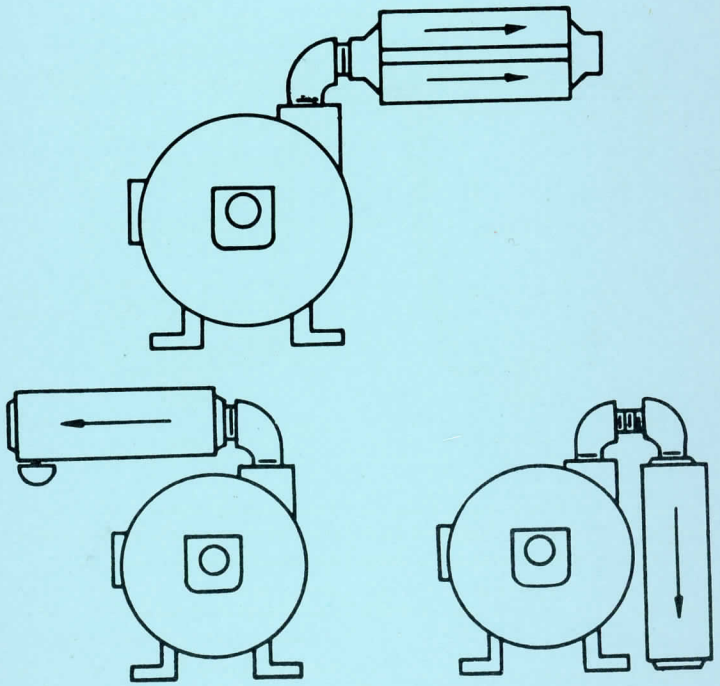
It operates on the basis that air entering at a high velocity charges the special filter material with a static electrical charge which attracts any small particles of oil. (The minimum particle retention size approximately 10 microns.) The oil vapor condenses on the fibers of the filter material and drains to the bottom of the filter chamber and then drains out of the end connection. The chamber is made of metal with standard pipe tappings at the ends. The special filter material is sealed in and no replacement is necessary.

Designed to operate on the outlet of Leiman Bros. vacuum and pressure pumps one filter will remove over 98% of the oil vapor. If two filters are used nearly 100% efficiency is obtained. In addition, it also acts as a muffler – deadening the noise formerly heard on an open outlet.

In paper feeding or all other feeding applications where air pressure is required to blow onto the article this filter will do an amazingly good job at pressures under 15 lbs. You can now use your air to separate the sheets without fear of damage by contamination.

TO CLEAN OUTLET VAPOR FILTER: Remove Filter. With filter in vertical position, pour naphtha into inlet or outlet. Let dry before replacing.

The sketches illustrate several ways of mounting Oil-Vapor Filter



INSTRUCTIONS FOR

WHEN ORDERING PARTS ALWAYS MENTION PUMP AND PIPE SIZE GIVING PUMP SERIAL NUMBER.

INLET DUST FILTER
W-126

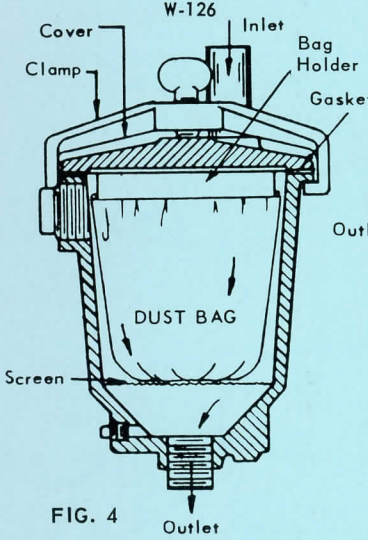


FIG. 4

OUTLET OIL SEPARATOR
U-126

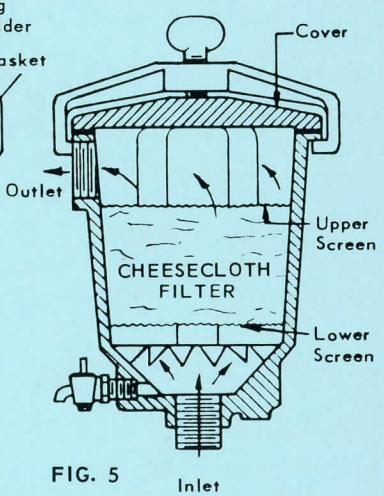


FIG. 5

Remove cover and inspect bag at least once a week. Empty if necessary. If after running for a while the pump loses some of its suction power, it is an indication that the bag needs to be emptied.

WASH PERIODICALLY

STOCK SPARE

Remove cover and inspect cheesecloth at least once a week. Change the cheesecloth as soon as it becomes saturated and pack in the new cheesecloth loosely. A change of cheesecloth will last perhaps a week or several months, depending on the service. If after running for a while, the pump appears to lose its blowing or suction power, it is an indication that the cheesecloth needs to be changed.

INLET AND OUTLET FILTERS

INLET DUST FILTER
P-127-1 & R-127-1

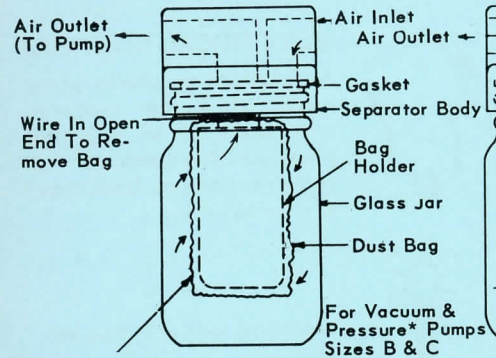


FIG. 4A

Remove and Clean Dust Bag Frequently (Brush Off). A Dirty Bag Will Reduce Pump Suction

OUTLET OIL SEPARATORS
P-127 & R-127

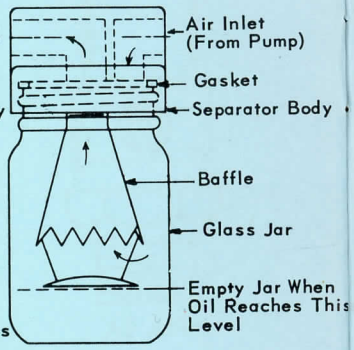


FIG. 6

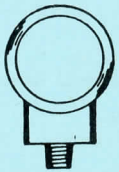
	FILTERS		SEPARATORS	
PART NO.	P-127-1	R-127-1	P-127	R-127
PIPE SIZE	½"	¾"	½"	¾"
GLASS JAR NO.	126-LB	126-LE	126-LB	126-LE
JAR SIZE	PINT	QUART	PINT	QUART
GASKET	126-LF	126-LC	126-LF	126-LC
BAG	126-LM	126-LJ		
BAFFLE			126-LA	126-LD
SEPARATOR BODY	127-P	127-R	127-P	127-R

*Over 5 lbs. pressure order as above type with Aluminum Jar.

SPRING TYPE PRESSURE RELIEF VALVE

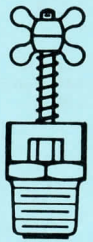
Prevents overloading pump and motor – will regulate pressure of air to be used.

FIG. 8A



ELECTRICAL CONTROL

Automatically starts pump motor at a low pressure and stops it at a higher pressure. Also made to operate on vacuum. Both types are adjustable.



VACUUM RELIEF VALVE

Prevents overloading pump and motor – will regulate vacuum to be used.

FIG. 7

VACUUM OR PRESSURE GAUGES

Gage should be used in conjunction with proper valve to check pump performance.

For mounting above items see Pages 30 and 31.

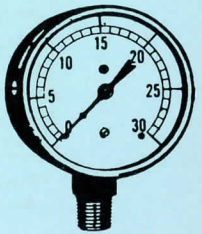
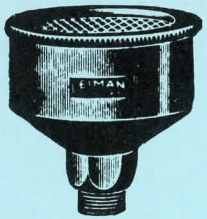


FIG. 13

INLET & OUTLET MUFFLERS



These mufflers reduce the pump or air motor noise and also absorb some oil. They are usually used on vacuum pump outlet, but can be used on pressure pump inlet.

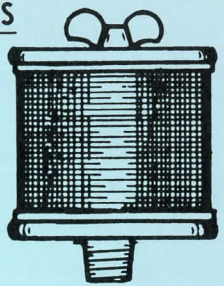


FIG. 14

Pipe sizes ⅜", ½", ¾"

Pipe sizes 1", 1¼", 1½", 2", 2½"

SUPER-SENSITIVE PRESSURE RELIEF VALVE

very sensitive diaphragm type valve for close regulation of air or gas pressure.

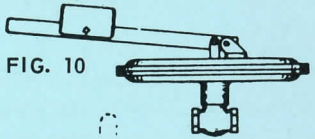
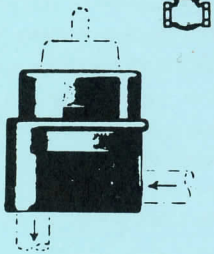
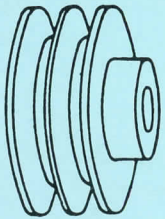


FIG. 10

OIL RETURN MUFFLER

Used on pressure pumps to muffle sound and to catch oil that might blow out of relief valve. Relief valve fits inside muffler. Supplied with bypass piping.



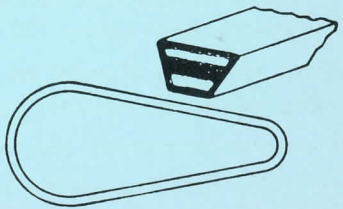


V GROOVE PULLEY

Furnished with one or more grooves in various diameters for motors and for our pumps.

V RUBBER BELT

Furnished 1/2" and 21/32" wide and in various lengths.



TO CORRECT ANY DIFFICULTIES IN USING LEIMAN BROS. AIR PUMPS

Check electric current in building with current of motor for correct running speed. Wrong current may mean wrong speed.

Check pump and motor shaft alignment.

A loose pulley or gear may prevent pump from turning at correct speed.

A loose belt will cause uneven vacuum or pressure.

EXCESSIVE NOISE

Pump may be running too fast. Check with speed indicator (tachometer) on shaft and compare results with speed specified in catalog. A slight reduction of the inlet of a pressure pump or the outlet of a vacuum pump will reduce noise; use a muffler or separator.

A higher vacuum or higher pressure than necessary will cause noise.

Use a relief valve with gauge to control vacuum or pressure.

Be sure that pump is lubricated properly. See Pages 6 and 7.

HOT RUNNING PUMP

All pumps usually run so hot that you cannot hold your hand on them (about 150 to 250 degrees F).

Drop a few drops of water on the top of the pump and if they quickly boil off, the pump is too hot.

The higher the vacuum, the higher the temperature.

The higher the pressure, the higher the temperature.

Use a relief valve to control vacuum or pressure.

Do not run at more than maximum speed for vacuum or pressure.

An old pump may overheat because it is filled with dirt. Clean out as described on page 25.

Be sure that pump is well lubricated. See pages 1, 6 and 7.

Keep inlet of pressure pump free and open.

Keep outlet of vacuum pump free and open.

A hot day will cause pump to run hotter.

We can supply watercooled pumps which do not overheat.

Do not run at more pressure than specified in catalog.

SMOKING PUMPS

Pumps do not really smoke but they sometimes give off an oil vapor. This is particularly true of vacuum pumps. A slight reduction of the outlet of vacuum pumps will reduce oil vapor.

Oil vapor can be reduced or eliminated by using our Vapor Filter or Outlet Separator. See pages 17 and 19.

A watercooled pump will run cooler and give off less oil vapor.

Pump outlet can be piped outdoors.

Try our Filters. See pages 19 and 20.

LACK OF PRESSURE OR VACUUM

See that pump is running at correct speed given in catalog.

See that pump is running in right direction as indicated by arrow on side of pump.

See that inlet of pressure pump is free and open.

See that outlet of vacuum pump is free and open.

See that pressure pipe from pump is attached to pump outlet.

See that suction pipe is attached to pump inlet.

See that pump is free of dirt inside.

Always check pressure or vacuum by placing gauge close to pump and then near working point. If there is any appreciable difference, it indicates an obstruction in the pipe line or a leak.

HARD RUNNING

If pump appears to run hard or overloads the motor; remove belt and rotate pump by hand to determine if it turns hard.

Be sure that pump is lubricated properly.

Be sure that pump is clean inside and that inlet and outlet ports are not clogged with dirt.

Try pouring a tablespoonful of kerosene oil in the inlet and revolving pump a few revolutions; then inject a spoonful of lubricating oil.

TO CLEAN OUT INTERIOR

Remove bolts from side flange and remove flange. (Cyl. Head)

On Roller Bearing Pumps, protect Rubber Washer of Shaft Seal from being cut by sharp corners of Keyway (Use Thin-wall Sleeve). See page 32.

Remove piston, shaft and wings.

Flush out cylinder and all parts with kerosene or gasoline and wipe dry with clean cloth.

Clean dirt out of inlet and outlet ports.

Coat all parts with lubricating oil.

A small steel sliver or pipe thread crumb (too small to be easily seen) under a wing will cause hard running and overheating.

Return broken wing with pump size and serial number with order for new wing.

Scrape old shellac from flange and rim of cylinder and clean with cloth.

Replace piston and wings in cylinder. Re-lubricate Roller Bearings.

Coat outer rim of cylinder or flange with thin shellac before replacing flange.

If it is necessary to remove the inner race of the Roller Bearing, a suitable Wheel Puller should be used.

REPLACING FLANGE WITH FELT WASHER IN BEARING

Do not remove washer, but in placing cylinder head or side flange on pump, see that none of the washers are caught on the end of the shaft as it enters the bearing.

Tighten flange bolts opposite to each other and evenly all around.

Rotate pump by hand as you proceed.

If pump does not rotate freely, repeat cleaning process just described.

OIL-COLLAR ON SHAFT PREVENTS AIR LEAKAGE

Do not remove collar from shaft, but if necessary, take notice of its position and replace, being sure that polished side is facing side of flange of pump and that the pin that drives the collar is in proper slot or hole.

The face of collar is lapped smooth, so do not let any dirt between it and lapped face on pump flange. Dirt will scratch this face and allow oil and/or air leak, causing poor pump performance.

DON'TS

Don't hammer or use heavy wrench on any of the parts.

Don't place paper or metal gaskets in pump.

Don't file or try to refit any of the parts of a new pump.

Don't blame troubles on pump when you first receive it, as all pumps have been thoroughly run in and rigidly inspected before leaving the factory.

Don't expect a little oil placed in the pump to last all day.

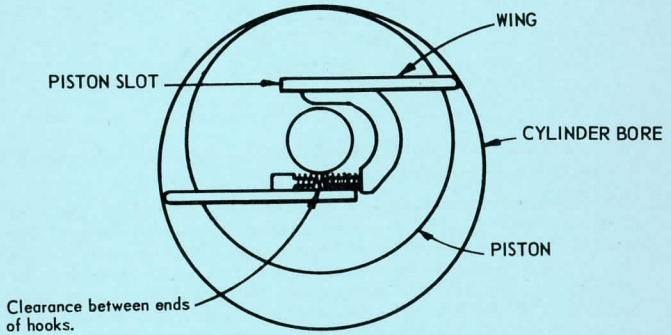
Don't pour a large quantity of oil in the pump as it will be thrown out in the first few revolutions.

Don't oil with hand oiler because the oil will quickly blow out of pump – use oil cup.

Don't be alarmed if pump heats up when running. Temperatures up to 250° F. are not unusual.

Don't fail to protect the pump by using one of our dust filters. See Pages 19 and 20.

INSTRUCTIONS
FOR FITTING STRAIGHT WINGS
IN PUMPS – Sizes 26–1½ thru 106



Hooks not furnished on pump sizes 26-1½, 26-3, K and K-3.

When fitting new wings the following instructions should be followed carefully.

Wings must have sliding fit in piston slot, and must not project beyond sides of piston.

Wings must be free of burrs. File or stone if necessary.

One flange or cylinder head should be securely bolted, to the one side of the cylinder, and the piston with wings and springs in place, put in position.

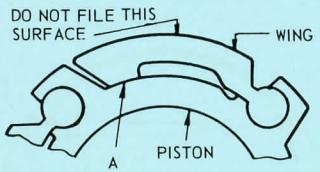
When piston and wings are rotated slowly, by hand, wing tips must be in contact with cylinder bore at any position.

When wings are in horizontal position (see sketch) ends of wing hooks should have clearance.

After pump is assembled, make sure that shaft can be rotated by hand.

INSTRUCTIONS
FOR FITTING CURVED WINGS
IN PUMPS – Sizes A thru G

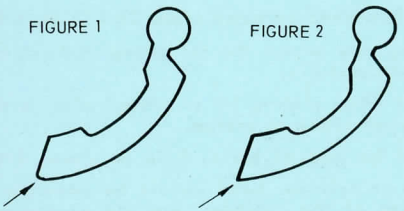
FITTING NEW WINGS



When fitting new wings the following instructions should be followed carefully:

One flange or head should be securely bolted to the one side of the cylinder and the piston put in position. The wings if wider than the piston should be filed to match the piston. Each wing should be fitted separately by inserting in the piston, putting on the head or flange and turning the piston one revolution. If the wing will not pass the top of the cylinder, the wing should be removed and the point "A" filed.

RE-FITTING OLD WINGS

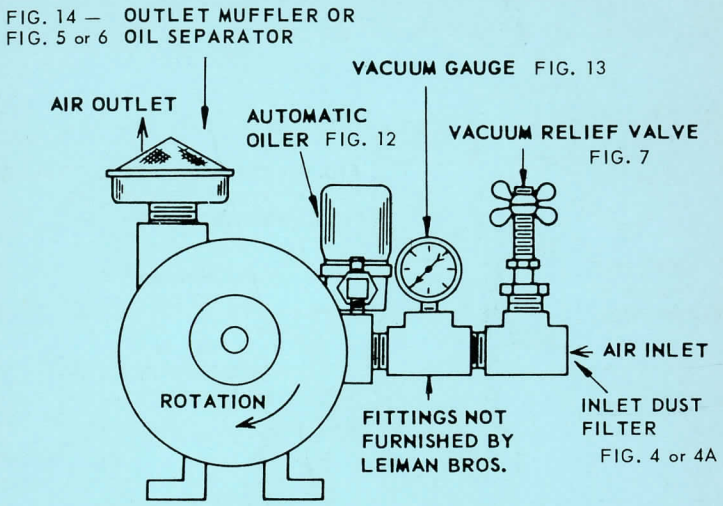


If it should be found that the tips of the worn wings have a sharp edge as in figure 2, this edge should be filed off round as in figure 1.

The edge must be filed even and straight across, and should be checked with a square to see if it has been filed square with the sides of the wing.

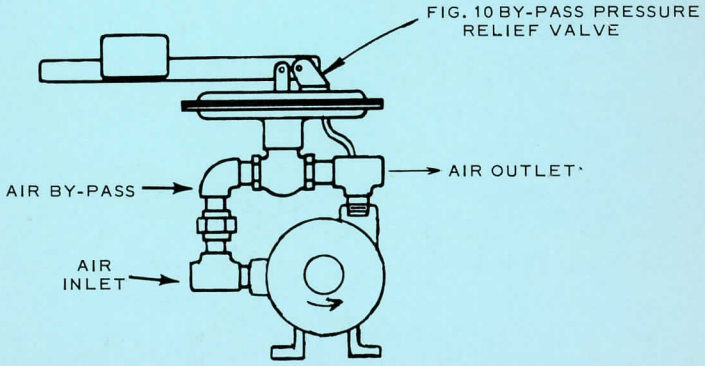
All wings are numbered on side 1-2-3-4. Be sure to replace them in their proper socket in rotor, which is also numbered.

ACCESSORY MOUNTING FOR VACUUM PUMPS



OIL CUP (PLACE ON INLET) EXCEPT
SIZES 26 TO 29 PLACE ON SIDE

ACCESSORY MOUNTING FOR GAS BOOSTER PUMPS



ACCESSORY MOUNTING FOR PRESSURE PUMPS